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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/586,484	06/01/2000	Bradley W. Smith	AAI-14085	8297

7590 11/25/2003

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EXAMINER

LUM, LEE S

ART UNIT	PAPER NUMBER
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3611

DATE MAILED: 11/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

09/586,484

Applicant(s)

SMITH, BRADLEY W.

Examiner

Ms. Lee S. Lum

Art Unit

3611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-9, 11-19 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-9, 11-19 and 21-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

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**DETAILED ACTION**

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1. An Amendment was filed 9/29/03. A Petition to Revive was granted 10/7/03.
2. The disclosure is objected to because in Claim 13, lines 9-10, "the respective lengths of the inflator, and the discharge treatment element length of the tubular member" is unclear.
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 3A. **Claims 7-9, 11-19, 21 and 23-25** (13 as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton et al 6176517 in view of Chandler Jr et al 5482315.

Re **Claim 7**, Hamilton discloses inflator 20 comprising elongated hollow tubular/arcuate member 52 (col 12, lines 52-53),  
containing an elongated supply of pyrotechnic gas generant material 28 (col 5, lines 25-27), and,  
plurality of longitudinally-spaced gas exits 56.

The reference does not specify the tube as having a length-to-diameter ratio greater than 20, while Chandler shows inflator 10 with a length-to-diameter ratio of "at least 12.5" (col 2, lines 44-45). While this feature is clearly application-dependent, and does not affect the proper operation of the invention, it would have been obvious to one with ordinary skill in the art at the time the invention was made to include this ratio, as exemplified in Chandler, to suggest the scope of applicability.

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Re **Claims 8, 9 and 11-19** (13 as best understood), Hamilton further discloses elongated diffuser/deformable discharge treatment element 96, having a length, and secured at positions along the inflator and treatment element (fig 2, at ends of the inflator), to treat at least a portion of the discharged gas, and, to deform to create spaced-apart flow paths along the length of the inflator, and the length of the treatment element, respectively, as depicted in figs 6A-D, filter 120 (fig 5), and, inflatable curtain airbag 110 communicating with the inflator (figs 7/8).

Re **Claims 21 and 23-25**, Hamilton in view of Chandler discloses a method of inflating an inflatable device, the steps derived from the structure and means previously described. With respect to Claim 24, it would have been obvious to one with ordinary skill in the art at the time the invention was made to include bending the tubular inflator to conform to a particular site in the vehicle.

3B. **Claims 2 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton in view of Chandler, and in further view of Walker et al 5845933.

Re **Claim 2**, the previous references do not disclose at least a portion of the gas generant material as including cylindrical grains, while Walker shows the gas generant as comprising cylindrical annular-shaped grains axially aligned end-to-end, in Fig 1 with grains 56. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include this material, as shown in Walker, as one type of gas generant material for certain inflators requiring this arrangement of gas generant, and so as to provide a more reliable inflator. This type of gas generant is one of various types well-known in the art.

Re **Claim 4**, the previous references do not include an elongated igniter extending within an cavity formed by annular-shaped grains, while Walker shows the inflator as comprising an elongated igniter 26, and fuse (Col 9, lines 29-31), extending within internal cavity 24. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include this material, as shown in Walker, for even (and time-dependent) ignition of the gas generant material, thus increasing optimal performance.

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3C. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton in view of Chandler and Walker, and in further view of Sheng 6068290.

The previous references do not disclose an ignition-enhancing material coated on the inner surfaces of the grains, while Sheng shows this feature in col 3, last paragraph. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include an accelerator on the grains, as shown in Sheng, as another gas generant for specific ignition characteristics.

3D. **Claims 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton in view of Chandler, and in further view of Armstrong III et al 5551724.

The previous references do not disclose a diffuser comprising an expanded metal, while Armstrong shows this element in Fig 4, and col 11, first four complete paragraphs. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include this element, as shown in Armstrong, in order to direct the outgoing gas towards the airbag, and treat it for particulates/undesired materials.

3E. **Claims 22 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton in view of Chandler, and in further view of Wilhelm 4158696.

The previous references do not disclose that the grains react substantially simultaneously, while Wilhelm shows this characteristic in Col 3, last line, to the next column. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include a material which can be ignited substantially simultaneously, as shown in Wilhelm, so to minimize the reaction time in which the airbag is inflated, for certain applications.

4. RESPONSE TO REMARKS

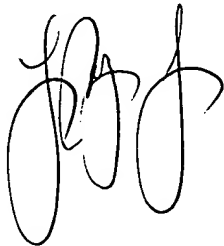
Examiner has provided a new combination of references (Hamilton and Chandler). It is clear that the limitation "length-to-diameter ratio of the tubular inflator is greater than 20" is obviated by Chander's disclosure of "at least 12.5". Given a minimal ratio for proper operation, it is understood that any ratio greater than this minimum is considered application-dependent.

The remaining combinations with Walker, Sheng, etc, are maintained because they disclose the recited elements/characteristics.

5. Communication with the Examiner and USPTO

Any inquiry concerning this communication should be directed to Ms. Lum at (703) 305-0232, 9-530, M-F. Our fax number is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to customer assistance at (703) 306-5771.

Ms. Lee S. Lum  
Examiner  
11/25/03

A handwritten signature in black ink, appearing to be 'L. Lum', written over a horizontal line.